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Dairy Herd Improvement Letter

MARCH-APRIL 1973

Vol. 49, No. 2

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NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

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Dairy Herd Improvement Letter

March-April 1973

LACTATION RECORDS RECEIVED IN 1972, BY STATE [1]

A total of 2,143,259 Official DHI lactation records were reported to USDA in 1972 for use in research involving the genetic evaluation of dairy bulls and cows. They amount to 76,516 more records than were reported in 1971. The number reported for each State during these two years is shown in Table 1. They include records for the USDA-DHIA Sire Summary runs of May 1971, September 1971, and January 1972 for calendar year 1971, and records for the runs of May 1972, September 1972, and January 1973 for calendar year 1972.

SUMMARY OF LACTATION RECORDS REPORTED SINCE 1957

A summary of the numbers of lactation records reported since 1957 is given in Table 2. The number reported annually has increased from approximately half a million in 1957 to over 2 million in 1972. The percentage of Official DHI cows represented has increased from 38 percent in 1957 to 95.5 percent in 1972, when 2,244,685 cows were enrolled.

1/ Prepared by G. J. King and L. F. Randall, with the assistance of M. K. Dixon.

RECORDS REPORTED BUT NOT USED IN GENETIC EVALUATION, 1972

Of the 2,143,259 lactation records submitted to USDA in 1972, the following were not used for genetic evaluation of bulls and cows:

Edit and reason for rejection	Number	Percent of records submitted
Preliminary edit--Identification number all zeros for sires of grade cows ------------	897,004	41.85
Preliminary edit--Other invalid data items --	29,800	1.39
Main edit--Conflicts with another record -------------------	48,854	2.28
Total ----------	975,658	45.52

The types and frequencies of error or rejection conditions noted in 1972 are shown in Table 3. Missing identification numbers for sires of grade cows caused the largest number of records to be rejected (897,004), compared with 850,759 in 1971; the next most frequent cause of rejection was registered cows with cow number all zeros. These appeared 14,553 times--2,988 more than in 1971. The number of records for registered cows rejected because of a zero dam or sire number was 4,862--which was 513 more than in 1971.

The inclusion of blanks in the record rose sharply from 1,267 in 1971 to 4,733 in 1972. Also, alphabetic characters in the two high-order positions of the sire number rose slightly in 1972.

Table 3 shows error conditions rather than the number of records in error. As many as four error conditions may be coded for a single record. This is reflected in the fact that the number of error conditions in Table 3 is more than the total number of records shown above as not being used for bull and cow evaluation.

The records rejected during the main edit are returned to the appropriate processing center for correction.

Increased care in identifying and reporting all animals in each herd would greatly increase the number of records used for bull and cow evaluation.

SIRE IDENTIFICATION IN OFFICIAL DHI LACTATION RECORDS, 1969-72, BY STATE

Table 4 shows the numbers and percentages of nonzero and zero sire numbers, by State, for the period 1969 through 1972. Some States' year-to-year comparisons may not be appropriate because of large fluctuations in the number of records reported from year to year.

In 1972, missing sire identification continued to be the main reason why many Official DHI records are not useful in sire and cow evaluation.

SIRE IDENTIFICATION IMPORTANT FOR DAIRY HERD MANAGEMENT

Accurate identification of sires of cows in a herd is valuable for herd management and improvement. For instance, accurate sire identification is necessary in most herds to avoid the harmful effects of inbreeding.

When sire identification (ID) is missing, sires cannot be evaluated. Most sire summaries are less accurate as a result of omitting records of daughters without sire ID. This is a disadvantage to the whole dairy industry, particularly since dairymen might be ignoring better bulls that have not been identified. The lack of sire ID slows down genetic improvement in the nation's dairy herds and causes economic loss to the industry.

SUMMARY OF THE USE OF OFFICIAL DHI RECORDS FOR BULL AND COW EVALUATION

Table 5 shows the trend between 1969 and 1972 in percentage of Official DHI lactations reported to USDA with missing sire ID, losses due to other errors found in editing, and the number of records used. There has been an undesirable increase in the proportion of cows without sire ID since 1970. However, there has also been a net increase in the number of records that contain valid sire ID and that can be used in genetic evaluation.

PERCENT OF COWS WITH SIRE IDENTIFICATION

Table 6 shows the variation among States in percentage of Official DHI cows with sire ID from 1969 through 1972. It shows that in 1972 only 11 States provided sire ID for 70 percent or more of their cows; 36 States provided sire ID for 40 to 69 percent of their cows; and one State provided sire ID for less than 10 percent of its cows. These data suggest that the emphasis placed on sire identification differs among the States.

TABLE 1.--Lactation records received by USDA in 1971 and 1972 for bull and cow evaluation [1/]

State	Official DHI cows on test 1-1-72	1972 lactation records		Official DHI cows on test 1-1-71	1971 lactation records	
		Total	Proportion of cows enrolled in Official DHI		Total	Proportion of cows enrolled in Official DHI
	No.	No.	% [2/]	No.	No.	% [2/]
Alabama---------	31,598	30,494	96.5	30,635	29,619	2/ 96.7
Alaska----------	81	71	87.7	80	123	153.8
Arizona---------	20,448	21,113	103.3	16.125	17,581	109.0
Arkansas--------	7,973	7,629	95.7	8,017	9,224	115.1
California------	367,632	227,008	61.7	372,993	189,336	50.8
Colorado--------	18,209	20,138	110.6	18,638	19,072	102.3
Connecticut-----	23,033	23,839	103.5	22,742	23,777	104.6
Delaware--------	4,143	4,235	102.2	4,290	4,639	108.1
Florida---------	18,060	15,448	85.5	20,703	17,587	84.9
Georgia---------	34,117	31,429	92.1	34,302	32,600	95.0
Hawaii----------	4,595	4,366	95.0	4,266	4,025	94.4
Idaho-----------	23,831	22,797	95.7	25,033	29,184	116.6
Illinois--------	57,694	54,521	94.5	56,071	52,070	92.9
Indiana---------	41,358	41,750	100.9	41,386	49,937	120.7
Iowa------------	64,150	70,377	109.7	62,182	74,485	119.8
Kansas----------	44,227	47,775	108.0	42,862	51,753	120.7
Kentucky--------	28,294	25,983	91.8	25,897	25,438	98.2
Louisiana-------	13,851	13,122	94.7	11,965	11,985	100.2
Maine-----------	19,241	20,640	107.3	17,978	20,706	115.2
Maryland--------	44,141	44,107	99.9	43,647	41,405	94.9
Massachusetts---	20,081	21,971	109.4	19,028	21,568	113.3
Michigan--------	85,931	89,010	103.6	81,141	69,367	85.5
Minnesota-------	133,620	154,153	115.4	125,403	101,629	81.0
Mississippi-----	23,596	17,752	75.2	25,461	22,601	88.8
Missouri--------	34,858	40,006	114.8	33,802	41,742	123.5
Montana---------	4,794	8,964	187.0	5,410	3,826	70.7
Nebraska--------	23,525	26,278	111.7	22,104	26,819	121.3
Nevada----------	4,333	3,489	80.5	4,395	3,700	84.2
New Hampshire---	10,654	11,451	107.4	10,912	12,256	112.3
New Jersey------	19,453	20,951	107.7	19,662	21,826	111.0
New Mexico------	7,463	10,812	144.9	9,754	9,825	100.7
New York--------	183,220	192,487	105.1	196,409	205,370	104.6
North Carolina--	58,674	59,690	101.7	56,557	57,551	101.8
North Dakota----	5,834	6,888	118.1	5,673	7,317	129.0
Ohio------------	80,462	86,956	108.1	86,908	109,227	125.7
Oklahoma--------	24,224	27,876	115.1	24,311	31,007	127.5
Oregon----------	27,426	26,631	97.1	25,900	29,268	113.0
Pennsylvania----	148,861	141,708	95.2	150,330	136,342	90.7
Rhode Island----	1,490	1,474	98.9	1,697	1,751	103.2
South Carolina--	28,964	27,576	95.2	28,886	27,408	94.9
South Dakota----	7,587	8,664	114.2	7,181	8,602	119.8
Tennessee-------	37,288	38,486	103.2	33,825	34,155	101.0
Texas-----------	35,331	34,285	97.0	30,815	32,316	104.9
Utah------------	26,641	27,782	104.3	24,394	25,966	106.4
Vermont---------	40,085	42,374	105.7	40,150	42,559	106.0
Virginia--------	66,222	67,988	102.7	65,324	64,384	98.6
Washington-----	54,676	49,517	90.6	52,161	56,629	108.6
West Virginia--	11,294	11,314	100.2	10,515	11,406	108.5
Wisconsin------	162,397	157,682	97.1	151,662	144,078	95.0
Wyoming--------	1,989	2,202	110.7	1,784	1,702	95.4
United States--	3/2,237,649	2,143,259	95.8	3/ 2,211,366	2,066,743	93.5

1/ Lactation record input for USDA-DHIA Sire Summary runs for May 1971, September 1971, and January 1972 for calendar year 1971 and for May 1972, September 1972, and January 1973 for calendar year 1973.

2/ Percentages vary by State and may exceed 100 percent depending on reporting and processing procedures in December and January of each year and year-to-year reporting procedures.

3/ Not included were 7,036 cows for 1971 and 1972 on Official DHI testing in Puerto Rico.

TABLE 2.--Summary of lactation records received by USDA

Year	Official DHI cows enrolled on January 1 of each year	Lactation records reported to USDA	Official DHI cows represented by records reported	Cows for which data are on computer processing 1/
	No.	No.	%	%
1957---	1,479,799	565,360	38	--
1958---	1,548,884	786,496	51	--
1959---	1,607,538	927,998	58	--
1960---	1,746,752	886,495	51	31
1961---	1,867,469	1,084,799	58	41
1962---	1,958,355	1,211,407	62	44
1963---	2,006,534	1,320,423	66	51
1964---	2,010,144	1,437,959	72	65
1965---	2,087,581	1,749,752	84	75
1966---	2,058,592	1,788,974	87	83
1967---	2,098,919	1,851,274	88	85
1968---	2,131,929	1,916,831	90	85
1969---	2,138,953	1,870,276	87	87
1970---	2,122,011	1,907,042	90	91
1971---	2,218,402	2,066,743	93	90
1972---	2,244,685	2,143,259	95	92

1/ Percentage of all Official DHI cows on test that are being processed through regional computing centers. USDA first reported computer processing of DHIA records in 1960.

TABLE 3.--Relative frequency of error conditions in Official DHI lactation records submitted for edit in 1972 1/

Preliminary edit -by registered and grade cows	Main edit rejects 2/3/	Error conditions	Error conditions in category	Percentage of total error conditions	Percentage of all records submitted
	Code		No.	%	%
Grade		Sire number all zeros	897,004	91.01	41.85
Registered		Cow number all zeros	14,553	1.48	.68
	A	Conflict with previous information supplied	13,633	1.38	.67
	B	Conflicting or questionable birth date	12,929	1.31	.60
	F	Conflicting or questionable calving date	11,770	1.19	.55
Registered/Grade		Blanks in any position of record	4,733	.48	.22
	S	Conflicting or questionable sire number	4,550	.46	.21
	C	Conflicting or questionable cow number	3,456	.35	.16
	D	Conflicting or questionable dam number	3,127	.32	.14
Registered		Dam number all zeros	2,779	.28	.13
Registered/Grade		Sire breed zero 4/	2,544	.26	.12
Registered		Cow breed "eight"	2,289	.23	.11
Registered		Sire number all zeros	2,083	.21	.10
Registered		Cow and dam breed unequal	2,025	.21	.09
Registered		Cow and sire breed unequal	1,811	.18	.08
Registered/Grade		Dam breed zero 4/	1,192	.12	.06
Grade		Eartag cow breed "non-eight", sire breed unequal	1,018	.10	.05
	J	Equal identification number for two or more of the animals in the pedigree	644	.07	.03
Registered/Grade		Alpha in high-order 2 positions of cow number	430	.04	.02
Registered/Grade		Alpha in high-order 2 positions of sire number	414	.04	.02
Registered/Grade		Alpha in high-order 2 positions of dam number	402	.04	.02
Registered		Dam number alphabetic	399	.04	.02
Grade		Eartag cow breed "eight", "non-eight" sire and dam equal	293	.03	.01
	I	Invalid characters--usually blanks or alphabetics	288	.03	.01
Registered		Cow breed zero 4/	237	.02	.01
Registered		Sire number alphabetic	221	.02	.01
Registered		Cow number alphabetic	164	.02	(5/)
	M	Conflicting or questionable milk pounds	122	.01	(5/)
	G	Invalid State code	113	.01	(5/)
Registered		Sire number an eartag number	101	.01	(5/)
	O	Conflicting or questionable fat pounds	70	(5/)	(5/)
	E	Conflicting or questionable breed code	70	(5/)	(5/)
	P	Conflicting or questionable fat percent	60	(5/)	(5/)
Registered/Grade		Days in milk zero	47	(5/)	(5/)
Registered/Grade		Days in milk blank	43	(5/)	(5/)
	N	Conflicting or questionable days in milk	14	(5/)	(5/)
Registered		Cow breed blank	5	(5/)	(5/)
Total or percent error conditions			985,633	100.00	45.98

1/ Total lactation records submitted = 2,143,259; total lactation records rejected = 975,658; percentage lost = 45.5.

2/ Conditions using these codes were discovered in the main edit and were recorded on the error tapes returned to the processing centers. All others were discovered in the preliminary edit.

3/ Detailed explanations of the main edit reject codes are in the December 1970 Dairy Herd Improvement Letter, ARS 44-222 (Vol. 46, No. 6).

4/ But a nonzero ID number.

5/ Percentage less than .01.

TABLE 4.--Comparison of numbers of sire identification in Official DHI lactation records for 1970, 1971, and 1972

	Official DHI records with sire number nonzero						Official DHI records with sire number zero					
	Number reported in--			Percent of all records reported in--			Number reported in--			Percent of all records reported in--		
State	1970	1971	1972	1970	1971	1972	1970	1971	1972	1970	1971	1972
	Thou.	Thou.	Thou.	%	%	%	Thou.	Thou.	Thou.	%	%	%
Alabama	11.8	9.2	9.0	34.0	31.0	29.5	22.8	20.4	21.5	66.0	68.9	70.5
Alaska	0.1	0.1	0.1	61.3	91.9	95.8	0.1	0.1	.003	38.7	8.1	4.2
Arizona	7.3	9.8	7.2	60.9	55.9	34.0	4.7	7.7	13.9	39.1	44.1	66.0
Arkansas	4.0	5.6	4.0	64.8	60.6	51.8	2.2	3.6	3.7	35.2	39.4	48.2
California	52.3	85.1	90.8	45.9	45.0	40.0	61.8	104.2	136.2	54.1	55.0	60.0
Colorado	7.2	10.1	10.6	45.3	53.0	52.5	8.7	9.0	9.6	54.7	47.0	47.5
Connecticut	17.0	16.6	16.7	70.3	70.0	70.0	7.2	7.1	7.2	29.7	30.0	30.0
Delaware	2.6	3.0	2.9	56.7	64.5	68.5	2.0	1.6	1.3	43.3	35.5	31.5
Florida	14.2	9.8	7.3	59.6	55.8	47.4	9.6	7.8	8.1	40.4	44.2	52.6
Georgia	18.0	13.2	10.7	47.5	40.7	34.1	19.9	19.3	20.7	52.5	19.3	65.9
Hawaii	.1	.3	.3	2.4	8.4	6.9	2.6	3.7	4.1	97.6	91.6	93.1
Idaho	9.6	10.6	8.9	34.7	36.4	39.2	18.1	18.6	13.9	65.3	63.6	60.8
Illinois	37.9	34.3	35.8	65.9	66.0	65.6	19.6	17.7	18.7	34.1	34.0	34.4
Indiana	15.0	29.1	26.0	47.8	58.2	62.4	16.3	20.9	15.7	52.2	41.8	37.6
Iowa	37.0	42.7	42.5	56.4	57.3	60.3	28.6	31.8	27.9	43.6	42.7	39.7
Kansas	26.5	31.6	29.6	64.1	61.1	62.0	14.9	20.1	18.1	35.9	38.9	38.0
Kentucky	14.3	12.5	12.3	51.3	49.3	47.1	13.5	12.9	13.7	48.7	50.7	52.8
Louisiana	7.8	7.2	7.4	64.3	59.7	56.0	4.3	4.8	5.8	35.7	40.3	44.0
Maine	14.4	15.5	15.4	74.7	75.0	74.6	4.9	5.1	5.2	25.3	25.0	25.4
Maryland	26.9	27.6	28.9	67.4	66.7	65.5	13.0	13.8	15.2	32.6	33.3	34.5
Massachusetts	15.3	15.9	14.6	77.1	73.7	66.6	4.6	5.7	7.3	22.9	26.3	33.4
Michigan	50.5	38.4	50.4	56.8	55.3	56.6	38.4	30.9	38.6	43.2	44.7	43.4
Minnesota	63.8	56.9	89.8	54.4	56.0	58.3	53.5	44.7	64.3	45.6	44.0	41.7
Mississippi	12.2	9.8	3.8	49.3	43.4	21.5	12.6	12.8	13.9	50.7	56.6	78.5
Missouri	16.2	21.2	21.6	50.5	50.9	54.0	15.8	20.5	18.4	49.5	49.1	46.0
Montana	2.2	3.5	8.6	87.6	92.1	95.7	.3	.3	.4	12.4	7.9	4.3
Nebraska	10.0	12.7	12.3	47.8	47.5	46.7	10.9	14.1	14.0	52.2	52.5	53.3
Nevada	1.3	2.4	2.1	64.9	63.8	61.3	.7	1.3	1.4	35.1	36.2	38.7
New Hampshire	8.7	9.7	9.0	76.8	79.4	78.2	2.6	2.5	2.5	23.2	20.6	21.8
New Jersey	15.4	14.9	13.9	68.1	68.3	66.4	7.2	6.9	7.0	31.9	31.7	33.6
New Mexico	6.6	7.7	8.5	77.5	78.7	78.6	1.9	2.1	2.3	22.5	21.3	21.4
New York	136.0	143.7	136.5	69.1	70.0	70.9	60.9	61.6	56.0	30.9	30.0	29.1
North Carolina	34.5	30.0	28.1	56.7	52.2	47.1	26.3	27.5	31.6	43.3	47.8	52.9
North Dakota	3.4	4.4	4.4	60.2	60.1	63.7	2.2	2.9	2.5	39.8	39.9	36.3
Ohio	40.0	69.5	57.0	61.0	63.6	65.5	25.6	39.8	30.0	39.0	36.4	34.5
Oklahoma	9.0	13.2	12.3	42.3	42.5	44.0	12.3	17.8	15.6	57.7	57.5	56.0
Oregon	13.6	14.0	12.0	48.5	48.0	44.9	14.4	15.2	14.7	51.5	52.0	55.1
Pennsylvania	112.3	110.8	114.3	80.8	81.3	80.6	26.7	25.6	27.4	19.2	18.7	19.4
Rhode Island	1.3	1.4	1.1	78.1	79.7	71.6	.4	.4	.5	21.9	20.3	28.4
South Carolina	15.7	13.2	11.8	50.4	48.3	42.8	15.4	14.1	15.8	49.6	51.7	57.2
South Dakota	4.4	5.4	5.4	63.2	62.5	62.0	2.6	3.2	3.3	36.8	37.5	38.0
Tennessee	15.7	14.9	17.1	44.4	43.6	44.4	19.7	19.3	21.4	55.6	56.4	55.6
Texas	16.2	16.2	17.4	49.4	50.2	50.8	16.6	16.1	16.9	50.6	49.8	49.2
Utah	9.7	15.0	15.4	48.9	57.8	55.5	10.2	10.9	12.4	51.1	42.2	44.5
Vermont	26.2	28.9	29.5	65.2	68.0	69.6	14.0	13.6	12.9	34.8	32.0	30.4
Virginia	42.3	38.0	40.3	58.2	59.0	59.3	30.3	26.4	27.7	41.8	41.0	40.7
Washington	25.5	26.8	22.3	47.3	47.3	45.0	28.4	29.8	27.2	52.7	52.7	55.0
West Virginia	6.0	6.8	6.4	57.8	59.9	56.2	4.4	4.6	5.0	42.2	40.1	43.8
Wisconsin	87.8	94.5	112.2	65.2	65.6	71.1	46.9	49.6	4.6	34.8	34.4	28.9
Wyoming	.4	1.7	2.2	89.8	97.8	99.5	.05	.03	.01	10.2	2.2	.5

TABLE 5.--Summary of the Official DHI records reported to USDA 1/

Year	Lactation records reported to USDA	Lactations reported with zero sire number		Lactations rejected by other errors found in editing		Lactation records used	
	No.	No.	%	No.	%	No.	%
1969	1,870,276	803,926	42.98	65,978	3.52	1,000,372	53.50
1970	1,907,042	782,474	41.03	67,032	3.51	1,057,536	55.46
1971	2,066,743	852,605	41.25	79,203	3.83	1,134,935	54.92
1972	2,143,259	899,087	41.95	76,571	3.57	1,167,601	54.48

1/ Values for lactations reported with zero sire number have been corrected for 1969 and 1970 to include registered sires without sire number. Other figures are corrected accordingly.

TABLE 6.--Variation among States in percentage of Official DHI cows with sire identification reported to USDA in 1969, 1970, 1971, and 1972

Cows with sire identification	States			
	1969	1970	1971	1972
%	No.	No.	No.	No.
90 or more	0	0	3	3
80-89	2	3	1	1
70-79	8	6	7	7
60-69	12	15	12	12
50-59	10	11	14	14
40-49	15	12	10	10
30-39	2	2	2	2
20-29	0	0	0	0
10-19	0	0	0	0
1- 9	0	1	1	1
Less than 1	1	0	0	0

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